

REMARKS

The Office action, dated as mailed October 14, 2005, addressed claims 1-16. The drawings were objected to and claims 9 and 10 were rejected under 35 USC §112, second paragraph, for lacking clarity. Claims 1-4 and 6 were rejected under 35 USC §102(b) and claims 5 and 7-16 were rejected under 35 USC §103(a). In response, replacement drawing sheets 1 and 2 are provided for the Examiner's review, the specification is amended to correct several informalities and claims 1, 2, 9, 10, 15 and 16 are amended above, and claims 17-20 have been added, to more particularly point out and distinctly claim Applicant's invention. Accordingly, claims 1-20 are now pending in the present application.

Prior to responding to the substance of the Office action, it is useful to recapitulate the invention as claimed.

The Claimed Invention

As illustrated in Figures 2a and 3b, the claimed invention contemplates a multispectral focal plane array that comprises a linear array or a two-dimensional array of photodetectors, the linear array having opposing sides and a thickness that decreases across the linear array from one side to another. In the case of a linear array, each photodetector has a distinct spectral response and, in the case of two-dimensional array, the photodetectors may be grouped together and each group may have a distinct spectral response. In either case, an integrated circuit

may be coupled to a read out of the array, wherein the integrated circuit collects electrical signals from the photodetectors.

The Objections to the Drawings

Replacement sheets 1 and 2 are provided as an attachment hereto and have been corrected in a manner believed to overcome the Examiner's objection and to correct minor informalities. With particular regard to Figure 3c, since this figure is duplicative of Figure 3b, it has been deleted. Also, the specification has been amended to provide a description of Figures 1a, 2a and 3c.

The Rejection of Claims 9 and 10 Under 35 USC §112

Claims 9 and 10 each stand rejected under 35 USC §112 as lacking clarity. Applicant has amended each above in a manner believed to overcome the rejection. If the Examiner intends to maintain the rejection, it is requested that the undersigned be contacted by telephone for a further understanding on the Applicant's part for the reasons for the rejection.

The Rejection of Claims 1 and 3 Under 35 USC §102(b)

Claims 1 and 3 stand rejected under 35 USC §102(b) as being anticipated by U.S. Patent No. 5,965,873 to Simpson et al, (below referred to as "Simpson"). However, Applicant respectfully traverses the rejection as Simpson fails to teach or suggest a multispectral focal plane array comprising a linear array of photodetectors, the linear array having opposing sides and a thickness that

decreases across the linear array from one side to another as defined by Applicant's claim 1 as now amended.

Simpson

As illustrated in Figure 2, Simpson describes a thin-film stack array 20 of photo detectors. The stack array 20 includes two or more pn junctions located at different fixed depths from the surface of the semiconductor that can provide different output signals, each with a unique depth related spectral sensitivity function. In particular, the spectral responses of the detectors are differentiated by using thin-film interference effects (see column 6, lines 59-63) whereby the optical transmission of an assembly is determined since the polarization and angle of incidence of the light are known and the thickness and the index of refraction of each layer is known.

It is important to note that Simpson teaches a very complicated multiple thin-film layered structure that provides for differentiating spectral responses via polarization changes.

Discussion

Applicant respectfully submits that claim 1 is not anticipated by Simpson as Simpson fails to teach or suggest multispectral focal plane array comprising a linear array of photodetectors, the linear array having opposing sides and a thickness that decreases across the linear array from one side to another as recited in Applicant's claim 1. In contrast, Simpson teaches a multi-layered

structure of **constant** thickness that takes into account polarization and angles of incidence between layers to provide for spectral differentiation. Accordingly, Simpson does not show a linear array comprising opposing sides and a thickness that decreases across the linear array from one side to another as defined in Applicant's claim 1 and, therefore, does not anticipate, nor render obvious, Applicant's independent claim 1.

Concerning claim 3 and since this claim depends from what should be an allowable independent claim 1, claim 3 should also be allowable for the reasons provided above.

The Rejection of Claims 2, 4 and 6 Under 35 USC §102(e)

Claims 2, 4 and 6 stand rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 6,803,557 to Taylor et al, (below referred to as "Taylor"). However, Applicant respectfully traverses the rejection as Taylor fails to teach or suggest a multispectral focal plane array comprising a two-dimensional array of photodetectors, the two-dimensional array having opposing sides and a thickness that decreases across the two-dimensional array from one side to another, and the photodetectors being grouped wherein each group has a distinct spectral response as recited by Applicant's claim 1 as now amended. Also, Applicant has an earlier invention date than the September 27, 2002 filing date of Taylor and thus would file a 37 CFR §131 Declaration to swear behind the filing date of Taylor should the Examiner choose to employ this patent in a subsequent action. Because of the above amendments to claim 2 and the below

discussion it is believed that, at this time, it is not necessary to provide such a Declaration, but, Applicant reserves the right to do so at a future juncture.

Taylor

As illustrated in Figures 11B, Taylor describes a two dimensional focal plane array composed of photodetectors that each have a compositional gradient. Referring also to Figure 1, each photodetector 10 includes a p-type layer 14 and an n-type layer 16 grown over the layer 14. The n-type layer 16 varies in composition in a direction that is away from the p-type layer 14 (see Figure 3A). It is important to note that Taylor teaches varying composition of a n-type material by depth and thus also provides for a constant thickness of each photodetector.

Discussion

Applicant respectfully submits that claim 2 is not anticipated by Taylor as Taylor fails to teach or suggest a multispectral focal plane array comprising a two-dimensional array of photodetectors, the two-dimensional array having opposing sides and a thickness that decreases across the two-dimensional array from one side to another, and the photodetectors being grouped wherein each group has a distinct spectral response as recited in Applicant's claim 2. In contrast, Taylor teaches varying composition of a n-type material by depth and provides for a constant thickness of each photodetector. Accordingly, Taylor does not show a two-dimensional array having opposing sides and a thickness

that decreases across the two-dimensional array from one side to another as defined in Applicant's claim 2 and, therefore, does not anticipate, nor render obvious, Applicant's independent claim 2.

Concerning claims 4 and 6 since these claims depend from what should be an allowable independent claim 2, they each should also be allowable for the reasons provided above.

The Rejection of Claims 5, 7, 9, 11, 13 and 15 Under 35 USC §103(a)

Claims 5, 7, 9, 11, 13 and 15 stand rejected under 35 USC §103(a) as being unpatentable over Simpson. However, Applicant respectfully traverses the rejection as Simpson fails to teach or suggest a multispectral focal plane array comprising a linear array of photodetectors, the linear array having opposing sides and a thickness that decreases across the linear array from one side to another as defined by Applicant's independent claim 1 from which each of claims 5, 7, 9, 11, 13 and 15 depend.

The Rejection of Claims 8, 10, 12, 14 and 16 Under 35 USC §103(a)

Claims 8, 10, 12, 14 and 16 stand rejected under 35 USC §103(a) as being unpatentable over Taylor. However, Applicant respectfully traverses the rejection as Taylor fails to teach or suggest a two-dimensional array having opposing sides and a thickness that decreases across the two-dimensional array from one side to another as defined by Applicant's independent claim 2 from which each of claims 8, 10, 12, 14 and 16 depend.

Conclusion

In view of the foregoing, Applicant respectfully requests reexamination, reconsideration and allowance of each of pending claims 1 through 20.

The undersigned attorney may be contacted at the number below to facilitate the resolution of any remaining matters.

Respectfully submitted,

By: 

Roger C. Phillips, Reg. No. 37,418
Attorney for Applicants

Date: 1/17/06

U.S. Army Communications Electronics Command
(732) 532-1459